The Reading Room

A provocative new model promoting open access to information

Brewster Kahle, director of the WAIS project (see story on page 5), offers his views on the clash between private ownership of information, and public access to information.

When written material is distributed over wires, the difference between a public library and a bookstore becomes fuzzy, raising difficult problems for the venerable tradition of free access to information in the public library system.

Public libraries have served two clashing goals: to allow open access to published information and to archive written history for future scholars and posterity. This uneasy combination has been joined into a single institution — public libraries, both centralized and branch — due to the technology of distribution of information on paper.

The wealthy buy. Books and magazines do not have some of the potential problems of electronically distributed material. They are inexpensive and relatively difficult to reproduce, so the wealthy tend to buy copies rather than using the free copies in libraries. Therefore, publishers of most types of material do not incur significant losses in sales because of library copies.

The library's role as archiver is not catastrophically sacrificed by the risk of loaning out books, since the limited public use does not destroy the books. As online distribution (so-called "electronic publishing") becomes common for different segments of written material, access and archiving become quite different, since making a copy is easy and inexpensive, and can be delivered without requiring a person to come into the library.

A unique way to serve the public

The result of this technology change can be an exciting one where the public library system can refine its charter and serve the public in a widespread way that was not possible with paper. The unique aspects of libraries — service-oriented staff, lack of profit motive, prevalent locations, and the role in schools — can give them a more important role in the future than they ever had in the paper era.

This essay will suggest a new model for the access goal of the public library, the "Reading Room," that protects and promotes publishers while serving the public in the tradition of the branch library.

Briefly, a Reading Room would offer patrons convenient access to all published information — in printed form or through a screen display — in many places in a town with the help of librarians, but I think the best way to explain the idea is to use the analogy with the U.S. banking system's transition from bank buildings to automatic teller machines:

Old Banks	Automatic Teller Machines
Centrally located	Everywhere
Limited hours	Available all the time
Local information	Global information
Physical savings books	Access cards
Used rarely	Constantly used

Libraries	Reading Rooms
Centrally located	Everywhere
Limited hours	Available all the time
Local information	Global information
Physical library cards	Access cards

— but still similar —

Friendly librarians	Friendly librarians
Comfortable reading chairs	Comfortable reading chairs
Current fiction	Current fiction
Easy browsing	Easy browsing

Reading Rooms can become an active part of people's lives, much as ATMs have transformed people's relationships with banks.

How the system might work

A minimal design for a Reading Room would be a one-room storefront that had a few comfortable chairs, a bookshelf with current fiction, several computers for browsing and reading, a printer and binder for printing copies on request, and a librarian during regular hours. Interlibrary loan would be used when a particular volume was needed. Therefore, these Reading Rooms would be used by the vast majority of the population, while the existing central libraries would be dominantly used by specialists and archivists. The rest of this essay will outline how this might work.

Benefits of going on line. Today's library patrons, as in the population at large, seem quite willing to use newer technology if it offers a savings of time or other benefits. The widespread preference for online card catalogs has been shown by the large-scale conversion from physical cards despite the costs.

Furthermore, good card catalogs that are accessible remotely have become very popular. The University of California's Melvyl system gets one-third of its requests from people not in the library and often from around the globe, according to Clifford Lynch, director of library automation in the University's Office of the President.

Allowing people access to card catalogs in Reading Rooms can expand the collections that can be accessed, and make them easier to use. People can also use these catalogs from home by dialing up with personal computers or through kiosks in public places.

Not a replacement for stacks

Catalogs, however, do not replace the stacks for browsing. Computers are making gains in browsing and serendipity — the act of stumbling across something you weren't necessarily looking for — as the screens get bigger and sharper, as full text becomes available, and as better searching systems are developed.

In a 1989 study by Bellcore, researchers found that serendipitous learning of journal information was enhanced by using a computer rather than paper. Experiments in Japan that have used computers to replicate the experience of looking at bookshelves have had encouraging results. We still have a ways to go to improve computer browsing, but great strides are being made.

Printing on demand. When a patron has selected a book or paper to take out of the library, printing and binding can be done on demand. Current screen technology can be used effectively to find useful documents by allowing the patron to browse and read snippets, but output from a printer will still be preferred for reading long pieces.

Although this may seem wasteful, I suggest it is not at all, for if paper were printed only if it were to be read by someone, then there would be many forests left standing. As it is, many pages of books, magazines and newspapers are never even read once.

We can trim paper consumption by encouraging people to print only what they intend to read by previewing on screens, and by printing pieces of long documents, such as chapters. As screens improve, more reading will be comfortable without resorting to paper.

Royalties and economics

What about the economic issues of royalties? Since the Reading Room monitors all the books printed and viewed, it is easy to keep a record of this and reimburse the publishers. Bear in mind that the current copyright laws are intended to ensure that authors, editors and publishers get a fair stake from the use of their work.

Reading Rooms can easily help in this process. Because they take care of the distribution and retail handling and the printing of the works, publishers can lower their costs of putting out a new volume. This cost savings can cause a flourishing of works intended for a more specialized audience.

Containing costs. How about covering the costs of the library? The total cost of maintaining a public library is about $3–7 per book per year, if all the books in the library are totaled and divided by total overhead. Conservatively, public libraries cost a suburban family of three about $50 per year.

If we were to give each family in a community a $50 debit card that could be used in any Reading Room, then every person would have incentive to use that card to read, check out and enjoy published works. If someone needed another card, it could be awarded based on the librarian's assessment of how the last one was used. Since not all families would use their full amount each year, this would guarantee that costs could be contained.

A Reading Room could be very inexpensive to build and operate, assuming a thrifty approach. Two computers, a laser printer, comfortable chairs and bookshelves could be a $25,000 investment; a well-paid librarian would be another $50,000 per year; adding $4,000 for rent would leave the sum well under $100,000 each year.

Is it feasible? Many medium-sized city libraries have a $3–7 million budget. The same amount of money could fund 30 to 70 Reading Rooms, distributed throughout a city. Obviously these numbers are estimates; my intention is to show that such a plan is feasible.

Might it happen? I don't know. Reassessing our basic institutions in the light of new technology is not something governments do very well.

However, there are many creative people working on the problems of decreasing literacy and falling school performance. Since Reading Rooms make quality information more available to more people, they might help spur learning and exploring among our citizens. I believe the idea is worth further study and possibly a few tests.

Brewster Kahle Q

WAIS: Is It the Lotus 1-2-3 of the Internet?

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San Francisco—Before you can sell a computer, you need an application. Until you get that magic Lotus 1-2-3 or Aldus Pagemaker, the market won't explode. The same goes for networks.

A new application called WAIS may prove to be the kicker for the Internet. Mind you, the Internet hasn't really needed a kicker. It doubles in size every seven months.

If you look at what people are doing on the Internet, though, you see the same old, same old. Electronic mail, FTP for file transfer, and Telnet virtual terminals are the three fundamental applications. The computing paradigms are basically the same ones invented in the early days of the Arpanet in the 1970s.

Brewster Kahle of Thinking Machines Inc., Cambridge, Mass., led a team of people that has developed a totally different way of using the network, a group of cooperating applications called the Wide Area Information Servers.

WAIS (pronounced like "weighs") is a way of finding and retrieving documents on the Internet. A document can be simple ASCII text, or can incorporate graphic images or be generated dynamically as a result of a database query. The server accepts queries using the Z39.50 protocol and returns names of documents and the content of those documents. A typical server accepts queries in natural English, translating the query into key words with which to search the database.

Clients can talk to lots of different servers on the Internet. A single query may be sent out to many places, and documents from different sources collated, allowing the user to view the network as one big database.

What makes this platform interesting is the kind of servers and client interfaces that have developed. Servers now available have an incredible range of information and are run by a gamut of groups. Interested in religion? You can dispatch queries to servers that have the full text of the Koran, the Book of Mormon, and the Bible.

Need information about water quality in Alaskan river basins? Servers ranging from the Columbia Law Library to a global weather change master directory will find dozens of relevant documents.

Client interfaces to WAIS have been developed for the Macintosh, X Windows, Next and several other graphical platforms. The client software lets a person compose queries, refine them, and then save the queries for periodic re-execution. You can think of this as a personalized newspaper.

WAIS can be run on a local network as a corporate information service. Or, for an easy entry to WAIS, a few workstations or PCs can access the servers already available on the Internet. Most effective is to do both, running a local server for corporate information and hooking up to the Internet to open up a broad universe of info for employees.

Why would Thinking Machines develop WAIS? One can think of Thinking Machines' massively parallel processors as the ultimate WAIS servers. Different processors can all look for different things, letting complex searches of large databases be run quickly. ■